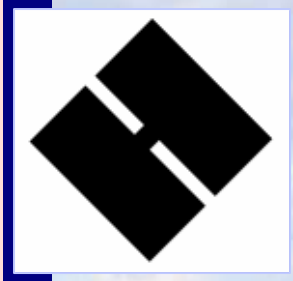
A. Linwood Holton Governor's School

Fall 2009 Newsletter

www.hgs.k12.va.us

Virginia's First Virtual Governor's School

Danny Dixon
Director



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Director's News

Fall is always an exciting time for everyone involved in education. There is something about the anticipation of a new school year with its fresh group of eager students that teachers, counselors, administrators, etc. look forward to from year to year. We at HGS are excited to welcome approximately 200 students to our Fall and Year-Long Classes. Many of them are here for the first time and we enjoyed meeting them (along with some of their parents) during Orientation. Others have completed other courses we offer and we enjoy welcoming them back and watching them grow over time.

Advanced Multi-Media Applications, our new class for this year, is off to a great start with 13 eager students. Their projects already illustrate considerable skill and amazing creativity. Mrs. Melissa Wilson, our instructor for this course, reports that she is very pleased with the enthusiasm her students are exhibiting and the quality of their work. All of us look forward to seeing the projects they will produce.

During this school year we will be completing renovation work on our main website and launching our HGS Facebook Page to encourage communication and collaboration among our students. Hopefully this will also enable us to stay in contact with our Alumni and to make it easier for them to serve as resource people to our instructors and Mentors to future HGS Students.

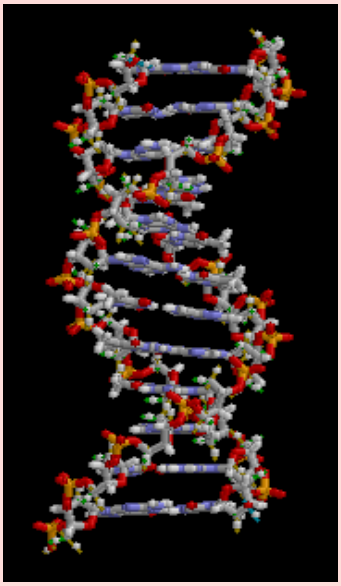
The Faculty and Staff of HGS extend our thanks for the assistance and support we receive from all our Educational Partners. It is a pleasure to work with each of you to provide exciting learning opportunities to the students of our area.

Danny Dixon

Anatomy & Physiology

This semester's Anatomy & Physiology students have jumped right into the hard work and excitement this class demands. Students are now learning 206 bones and the Greek and Latin terminology necessary to study the human body. This year the classes are also focusing on the latest medical news and research that is happening as well as a shadowing project with a medical professional. Many are considering a career in a health profession and this opportunity will help them realize that goal.

Recently the classes have studied the scientific term "amphipathic" and applied it to the physical and chemical characteristics of the cell membrane. They noted that some materials can enter and exit the cell membrane while others cannot. This process is due to the polar and the nonpolar regions present in the cell membrane. To demonstrate the selectively permeable characteristic of the cell membrane, students were assigned an activity to test the amphipathic properties of whole milk. This involved the use of the milk, food coloring, and soap. The outcome is quite exciting and I am sure the students would share this experiment with anyone who is interested.



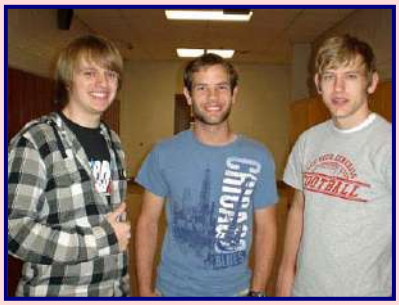
Another laboratory activity that students have been involved in is the extraction of DNA from an animal as well as a plant specimen. Results were shared as the differences in the two different samples were examined. Afterwards students participated in a Virtual Lab that allowed them to determine and analyze DNA fingerprint techniques.

In November two classes will be going to Eastern Virginia Medical School in Norfolk, Virginia. While there students will get to know first year medical students and will spend one on one time with them and ask questions about medical school. The highlight of the trip will be time in the gross anatomy laboratory. Many of the professors, who are also physicians, will share their research and medical studies. This is a unique opportunity for Holton Governor's School Anatomy students. The other classes will make the same trip in the spring.

So far this has been an exceptional year. It is wonderful that the students of Southwest Virginia can take advantage of all the opportunities that A. Linwood Holton Governor's School has to offer.

HGS Students Triumph in 2008-2009 NASA Aeronautics Competition

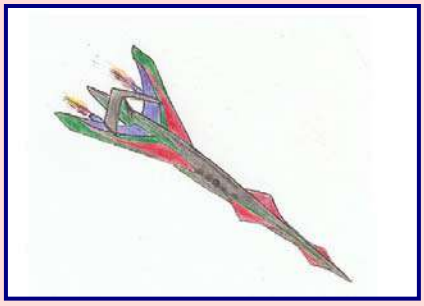
Three of Dr. Steve Rapp's Engineering students, Elijah Whitaker, Cody Rutherford, Tanner Byington, teamed up for the NASA Aeronautics Competition and won Second Place Honors. They shared a $750 award for their successful efforts.



Teenagers from eight states and 11 foreign countries participated in the competition sponsored by NASA. The students were asked to write a well-documented research paper describing what needed to be accomplished to make supersonic flight available to commercial passengers by 2020.

"All the conceptual designs were imaginative and innovative," said Bob Mack, a veteran supersonics researcher at NASA's Langley Research Center in Hampton, VA, who reviewed all the top papers. "The design in the winning papers showed the students had a definite respect and appreciation for technical realities while still being imaginative."

Below are the general guidelines and directions that were designed for the student's entry.



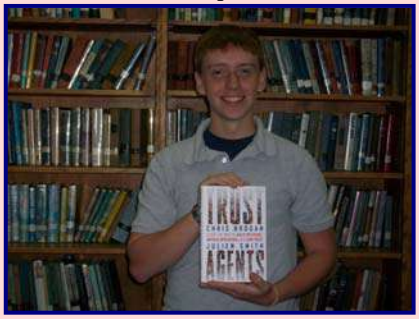
Present documented review of the pros and cons of supersonic flight, the challenges and the solutions. Include informed description of the potential customers for this new service and how the service may fit with existing airport traffic. Papers will be limited to a 10 page minimum and a 12 page maximum and must include a literature review and documented references. Following are some barriers they should discuss in the paper:

- Efficiency challenges, including supersonic cruise efficiency. There are two principal elements to supersonic cruise efficiency—propulsion efficiency and airframe aerodynamic efficiency—and these must be treated as an integrated challenge.
- Environmental challenges, including airport noise reduction, sonic boom modeling, and high-altitude emissions reduction.

"Elijah, Cody, and Tanner," responded enthusiastically to this competition, said Dr. Rapp. "They designed a supersonic aircraft that I'm sure would have made many engineers jealous." The aircraft has an arrow shape to it to help alleviate sonic boom which was the demise of the Supersonic Transport. A copy of their research paper can be found at the following NASA website: http://www.aeronautics.nasa.gov/pdf/team_holton.pdf.

Multimedia Contest: Marketing Online Businesses

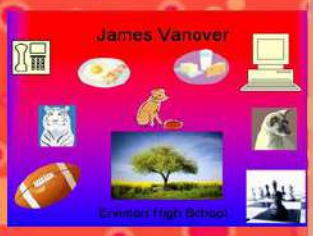
On September 5, 2009, Isaac Viers won a copy of Brogan and Smith's *Trust Agents*: *Using the Web to Build Influence Reputation and Earn Trust* as a contest prize provided by ThoseGeeks.com. Jeremy Bise, former Governor School student, launched a contest and invited the Advanced Multimedia Applications students to participate. The contest lasted five days as students participated in daily discussions. Selected topics were both general and specific which related to the growing use of the Internet in the world of business and how certain aspects of Multimedia play specific roles in marketing online businesses. Students discussed social relationships and best approaches using technology to provide a wide but not broad range of software programs and available online applications. Cody Deloach from Ervinton High School commented, "Technology has made a world of difference in just about every kind of field imaginable--social, medical, scientific, and everything in between." Discussion #4 seemed to be most productive for students as the discussion board collected many useful resources. Jeremy Bise would like to thank the Multimedia students for their participation.



Advanced Multimedia Applications has taken off with a blast! Students are working with applications that create sounds, videos, and images bringing them all together into many different projects. Class began as students created personality portfolios to introduce themselves to the group. Audio recording programs such as Audacity enabled students to produce their first audio projects. Exploring the history of audio, students studied the making of Old Time Radio productions and spent time manipulating sounds created in the early 1950s. We soon learned there are several differences between analog and digitized sounds as the many features today's technologies offer us such as how to manipulate music with audio software features, trimming, resampling, downsampling, fading in and out, echoing, normalizing, and splicing.

An expressway of hardware and peripherals are possessed by our students today. They have their Blackberries, cell phones, digital cameras, and digital recorders in their pockets, purses, and book bags. Students are being taught to use these tools wisely to build personal libraries of images, videos, and sounds to create their own unique multimedia archives. These libraries are created by students' own unique paper/pencil drawings, snapshots, and recorded sounds that are all digitized and archived in their multimedia libraries. This project has brought out gifted students' artistic and creative skills into our technological environment.

Diverse multimedia skills are many as students have brought many different levels of experience with both hardware and software to the class. Currently, one class is working on public service announcement videos. Various topics include multimedia copyright infringement, The Susan G. Komen Foundation, and a current American Cancer Society Relay for Life event. Knowing how to build Multimedia projects will take our students far in their educations and futures careers. It doesn't matter what career one chooses, knowing how to manipulate different modes of technology definitely will be an asset. Later in the semester, students will be creating a movie trailer.



Advanced Multimedia Applications

Appalachian History

Appalachian History flourishes at the A. Linwood Holton Governor's School. The Fall 2009 Appalachian History Class adopted as the Guiding Theme for this semester the study of the history of the home county of each participant. The goal is to understand the traditions of the past and their significance for our present and for the future. By learning our history, we hope to better understand ourselves and to better prepare for our future. Topics for the research paper, called the Local History Report, include: the story behind the story of the "Trail of the Lonesome Pine," a history of the Train Depot in Dungannon, the story of Francis Gary Powers, and the history of the Madame Russell Church in Saltville. Course Projects, usually presented in a PowerPoint presentation, include: a comparison of the history of Saltville, Virginia to that of Brookline, New Hampshire, a study of the Hatfields and the McCoys, a biography of musician Beachard Smith, and, just in time for October evenings, a study of Appalachian ghost stories. Ultimately, the best of these projects will be posted at the ALHGS website in the Appalachian History Archive.

A new addition to the Appalachian History course this year is the Historic Site/Event Visit. Each student is expected to select and visit a historic site in the region; attendance at historical reenactments is also encouraged. Possible options include but are not limited to: Sycamore Shoals, the Kilgore Fort House, the Battle of Saltville reenactment, and Native American Day at Natural Tunnel State Park. The goal is to get the students to seek out historic sites and events in order to grasp the rich history of the region. Students have until October 26, 2009 to complete their visit and prepare a report to share with the class. The report consists of questions such as: what did you learn at this site/event? What aspect of the site/event did you find the most interesting? How did this site/event enhance your understanding of both local history and of the discipline of history as a whole? How will this experience lead you to further research on local history?

Western Civilization

Students in the Western Civilization course are currently pondering the intricacies of ancient Greek thought and culture. After a thorough discussion of Socrates, Plato and Aristotle, the classes are going to read the Greek tragedy *Medea*. The classes will then place Medea, the title character, on "trial" to discuss the significance of the play. The goal is to understand the play as the ancients have understood it: as a contemplation of the role of women and the concept of justice in the Classical Age. After this, the Roman Empire extends before the Western Civilization students in all of its fabled glory. A major new addition to the course later this fall will be a class discussion on the impact of the Black Death on medieval Western history. With the reality of the H1N1 pandemic, this discussion, which will encompass aspects of a class project, is all the more timely!

World Civilization

The World Civilization Students have focused a great deal thus far on Chinese and Asian philosophy; we will continue to follow these. The next major issue for this class will be an in-depth study of the medieval Silk Roads. These key trade routes led to an unprecedented global integration in the 13th and 14th Centuries; ultimately, this integration helped create the deadliest pandemic in recorded history: the Black Death of the 14th century. As the semester draws to a close for this course, the 1918-1919 Spanish Influenza pandemic will also be discussed to illustrate the on-going dynamic of diseases in the era of the H1N1 pandemic.

Another focus that will dominate a good portion of October will be a study of the rise, progress and significance of Islam. Given the recent news releases that there are 1.3 billion Muslims on the planet (roughly 20% of the global population), this topic is especially urgent to prepare students of far Southwest Virginia for the global economy of the 21st Century.

Students Conduct Research for NASA and NRAO

Dr. Rapp's Physics and Astronomy students are currently involved in The Quiet Skies Project. This project is supported by the National Radio Astronomy Observatory (NRAO) in Green Bank, West Virginia, the National Aeronautics and Space Administration (NASA), and the National Science Foundation (NSF). Radio Frequency Interference (RFI) is becoming problematic for radio astronomers around the world. There are many devices that create RFI that might interfere with the gathering of radio wave data at radio telescopes like the Robert Byrd Green Bank Telescope (GBT) (see http://www.gb.nrao.edu/gbt/ for more information). Even a bad home thermostat or an electric fence can cause RFI for the GBT. Radio astronomers observe at four major frequencies, 1665 MHz, 1420 MHz, 900 MHz, and 800 MHz.

Rapp's students were pioneers in conducting this investigation and are continuing to add data to the national data base. They are using detectors provided by NRAO to determine if RFI is invading the frequencies used by radio astronomers. Areas around their schools and communities are being surveyed as shown in the photo below.

The students have reached the following conclusions based on the data collected so far:

- The frequencies of 1420 MHz and 1665 MHz had the lowest RFI.
- The frequencies of 800–900 MHz had the most RFI.
- The area of lowest RFI was at NRAO.
- There seems to be no relationship between elevation and RFI. Students thought that this trend needed more investigation.
- Frequencies with the highest positive dBM readings were in the 1050–1250 MHz range.

The Science Teacher magazine published an article in the October, 2008 issue concerning the research Dr. Rapp and his students have done. The students continue to be involved in authentic scientific research.

Tazewell High Students with the Quiet Skies RFI Detector

Student Reflections

David Crabtree

I remember opening my A&P textbook for the first time. I was immediately drawn to the detailed pictures of the amazing and intricate human body. It was perhaps at this moment that my curious brain was aroused and sought knowledge of the human body. The opportunity to take A&P through the Linwood Holton Governor's School was for me the door to my future, literally...

But the experience was not only obtained through studying or listening to "KSMITH" lecture. The Governor's School even offered students a trip to Eastern Virginia Medical School where *reality was dissected*; yes, my first cadaver! I will also never forget Dr. Aravich's inspiring lecture on what it takes academically and personally to become a medical doctor...

A mere two years later have passed [since high school graduation] and I have grown tremendously both academically and personally. So what does all of this mean? First, words can not fully describe the experiences that I have had. We all may relate to studying hard for tests and stressing over academic performance, but one thing I encourage students interested in medicine to do is *experience* medicine. Whether you become a nurse assistant or simply shadow physicians, do yourself a favor and become aware of your future; you may be surprised and inspired at what you see...

Now a look at where the A&P course has gotten me thus far...I am part of the East Tennessee State University's "University Honors Scholars" program, a program that admits only 20 students per entering class. But perhaps more pertinent for this discussion, I am one of twelve students, the only from the Commonwealth, who have been accepted to the ETSU James H. Quillen College of Medicine through the joint BS-MD degree granting Premedicine-Medicine (PMMD) program. I am now a member of the Quillen College of Medicine Class of 2015!

Thanks Governor's School, and thanks Ms. Smith. The foundations from A&P class have contributed to me being accepted to one of the best medical schools in the nation. I currently have interests in rural family and emergency medicine, but only time and experience will lead me to the right specialty of medicine.

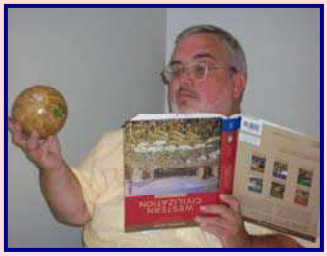
For more on ETSU Honors: www.etsu.edu/honors

For more on ETSU Quillen College of Medicine: http://www.etsu.edu/com/default.aspx

Find us on Facebook to discover more about upcoming events!
Or, simply use it as another avenue to just "keep in touch."
We're there and waiting…and remember…we are already one of *your* biggest fans!



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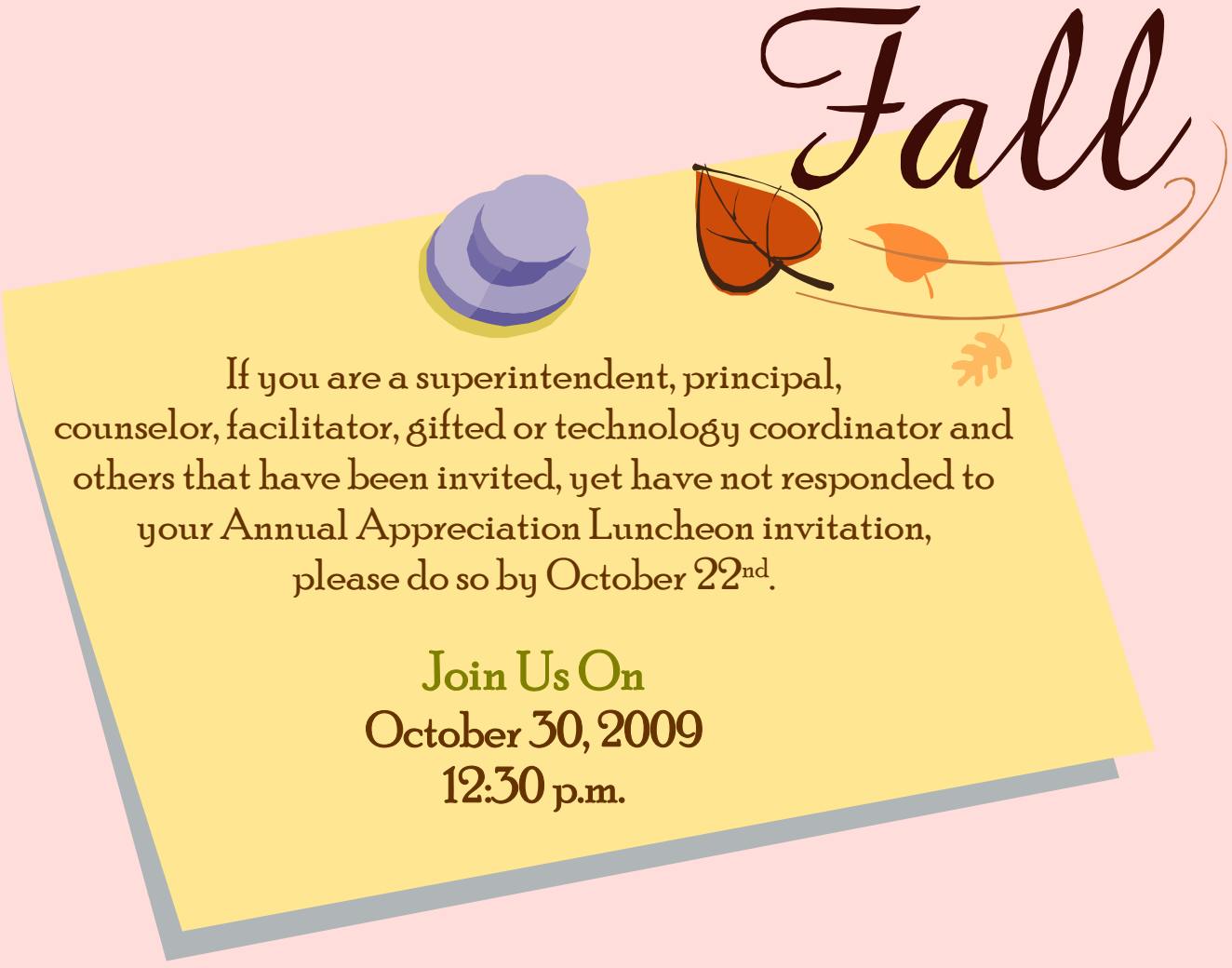
Let Us Show Our Gratitude this October!

On October 30th superintendents, principals, counselors, facilitators, gifted and technology coordinators and others across the region will attend an Appreciation Luncheon at the Southwest Virginia Higher Education Center on their behalf.

"On behalf of the Faculty and Staff of HGS, I would like to express our appreciation to all of our K-12 and Higher Educational Partners, our Advisory Committee, and our Governing Board for your ideas, guidance, and unwavering support of our school and its programs. It is a pleasure to work with each of you and we look forward to another successful year!" said Danny Dixon, Director of the School. "The goal of the luncheon is to let our supporters know that we are aware of the time and effort that they contribute to our school and students and that they are appreciated."

Even though everyone will not be available to attend, our desire is to let them know that they are indeed appreciated.

Thank You!



Governing Board Members

New appointment in progress.....Buchanan County
Ms. Virginia Goodson.....Bristol City
Ms. Willie Harris.....Norton City
Mr. William Patton.....Dickenson County
Mr. Kyle Chadwell.....Lee County
Ms. Linda Cross.....Russell County
Mr. Lowell Campbell.....Scott County
Ms. Susan Sneed.....Smyth County
Ms. Cookie Johnson.....Tazewell County
Mr. Curtis Burkett.....Washington County
Ms. Betty Cornett.....Wise County
Dr. Alan T. Lee.....Superintendent's Representative

Thank You for your nurturing hand!

Advisory Committee Members

Ms. Sarah Cromer.....Administrator, Tazewell County
Mr. Jim Johnson.....Virginia Highlands Community College
Dr. Michael Robinson.....Superintendent's Consortium of Region VII
Ms. Rita Street.....Administrator, Russell County
Mr. Michael Brickey.....Administrator, Scott County
Mr. Gary "Bo" Catron.....Administrator, Washington County
Mr. Don Shaffer.....Guidance Counselor, Washington County
Ms. Debra Gilly.....Governor's School Facilitator, Wise County
Mr. Richard Pannell.....Community Member, Washington County

Participating Schools

Abingdon High
Appalachia High
Bland High
Carroll County High
Castlewood High
Chilhowie High
Clintwood High
Coeburn High
Council High
Ervinton High
Galax City High
Gate City High
Graham High

Grayson County High
Grundy High
Haysi High
Holston High
Honaker High
Hurley High
J.I. Burton High
J.J. Kelly High
John Battle High
Lebanon High
Lee High
Marion Senior
Mt. Rogers Combined

Northwood High
Patrick Henry High
Pound High
Powell Valley High
Richlands High
Rocky Gap High
Rye Cove High
St. Paul High
Tazewell High
Thomas Walker High
Twin Springs High
Twin Valley High
Virginia High

Participating Colleges

MOUNTAIN EMPIRE COMMUNITY COLLEGE
SOUTHWEST VIRGINIA COMMUNITY COLLEGE
VIRGINIA HIGHLANDS COMMUNITY COLLEGE
WYTHEVILLE COMMUNITY COLLEGE

Our Mission:

Is to provide **challenging learning opportunities** for the gifted & talented students of far Southwest Virginia that are not available to them in their regular school program.

We will accomplish this by **strengthening their abilities** and **nurturing their social and emotional well being** - through **mentoring, rigorous academic courses, service to the community, and leadership training** within an *entrepreneurial culture that encourages* ***creativity, initiative, and problem solving.***